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MCH3383

P-Channel Power MOSFET -12V, -3.5A, 69mΩ, Single MCPH3

Features

- ON-resistance $R_{DS(on)} = 57\text{m}\Omega$ (typ.)
- 0.9V drive
- Halogen free compliance
- Protection diode in

Specifications

Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

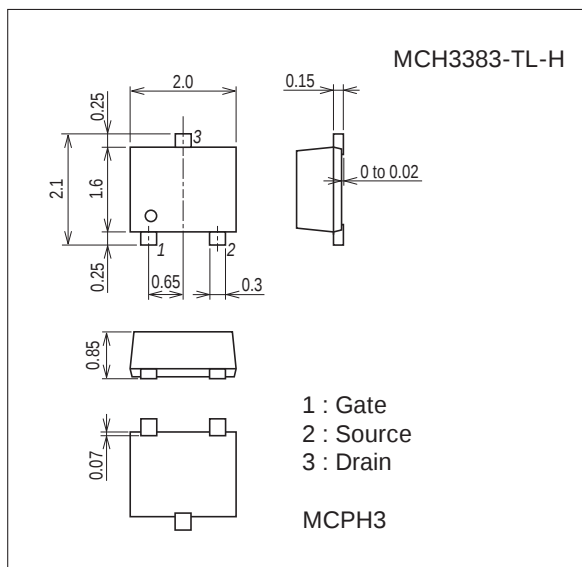
Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DS}		-12	V
Gate-to-Source Voltage	V_{GS}		± 5	V
Drain Current (DC)	I_D		-3.5	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	-14	A
Allowable Power Dissipation	P_D	When mounted on ceramic substrate (900mm ² × 0.8mm)	1.0	W
Channel Temperature	T_{ch}		150	°C
Operating Temperature	T_{opr}		-5 to +150	°C
Storage Temperature	T_{stg}		-55 to +150	°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Package Dimensions

unit : mm (typ)

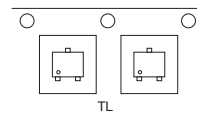
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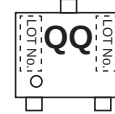
Product & Package Information

- Package : MCPH3
- JEITA, JEDEC : SC-70, SOT-323
- Minimum Packing Quantity : 3,000 pcs./reel

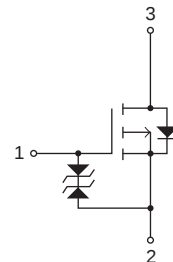
Packing Type : TL



Marking



Electrical Connection

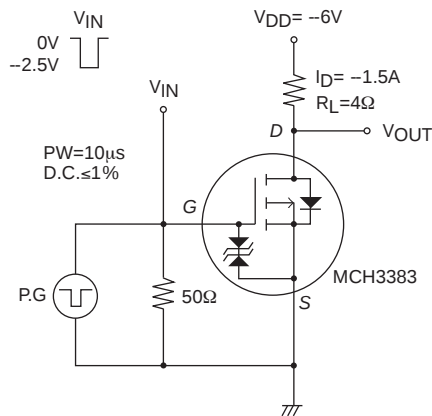


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Electrical Characteristics at Ta=25°C

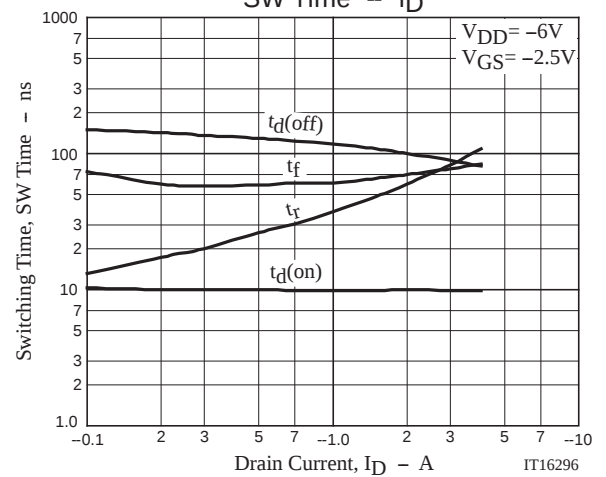
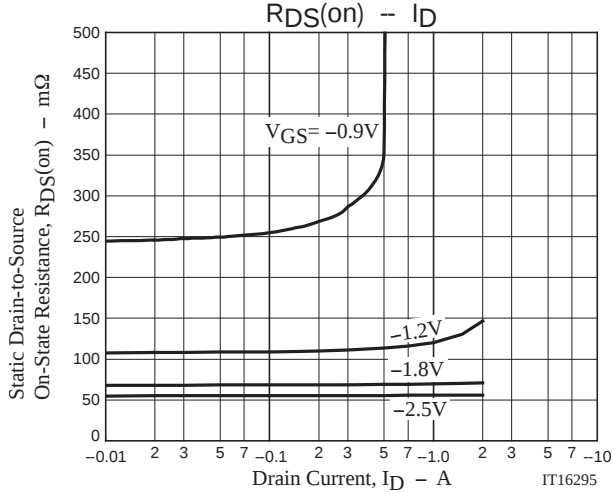
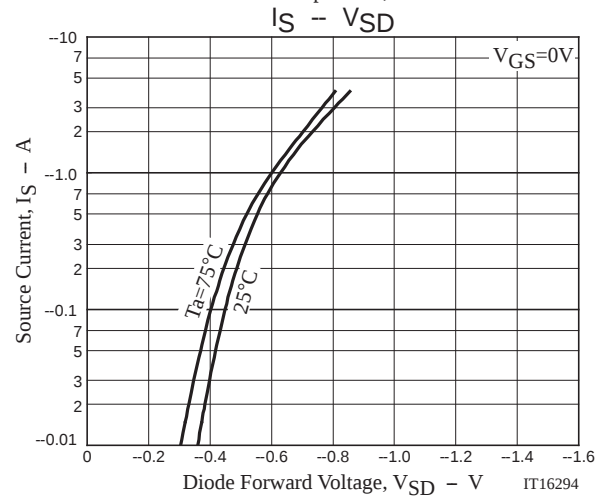
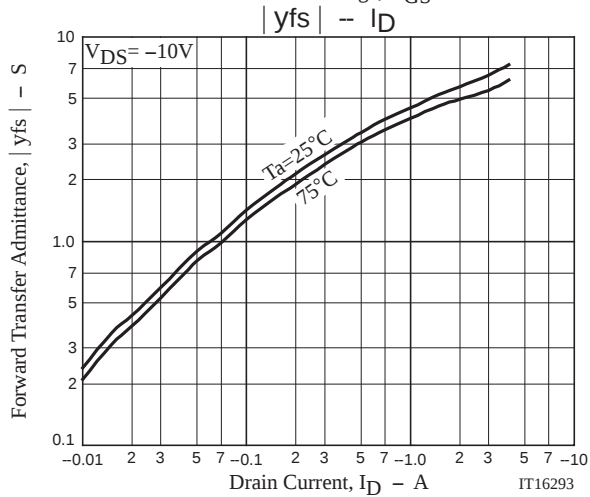
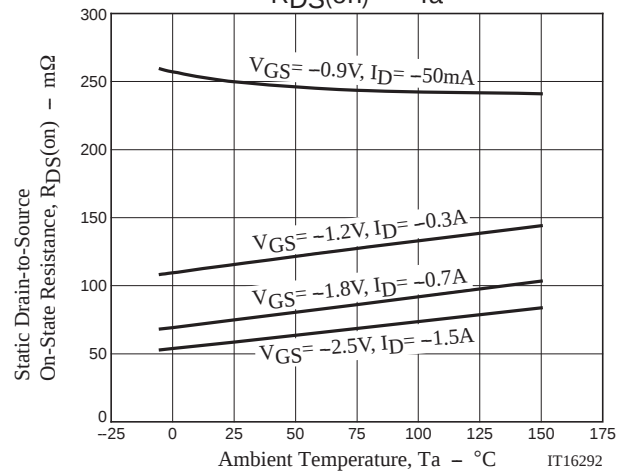
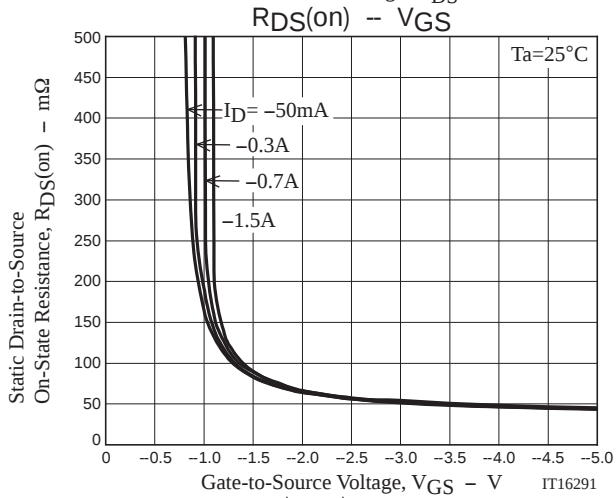
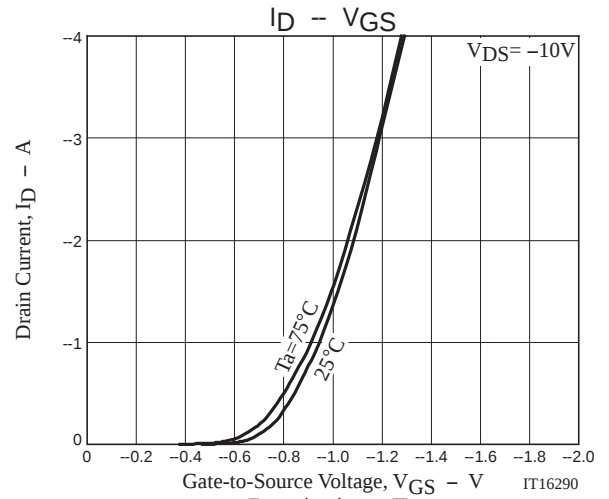
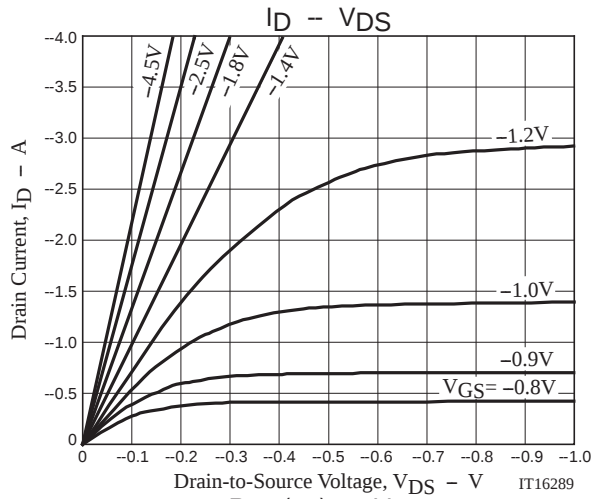
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -1mA, V_{GS} = 0V$	-12			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -12V, V_{GS} = 0V$			-10	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 4V, V_{DS} = 0V$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = -6V, I_D = -1mA$	-0.3		-0.8	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = -6V, I_D = -1.5A$		5.3		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D = -1.5A, V_{GS} = -2.5V$		57	69	$m\Omega$
	$R_{DS(on)2}$	$I_D = -0.7A, V_{GS} = -1.8V$		75	98	$m\Omega$
	$R_{DS(on)3}$	$I_D = -0.3A, V_{GS} = -1.2V$		115	173	$m\Omega$
	$R_{DS(on)4}$	$I_D = -50mA, V_{GS} = -0.9V$		250	500	$m\Omega$
Input Capacitance	C_{iss}	$V_{DS} = -6V, f = 1MHz$		1010		pF
Output Capacitance	C_{oss}	$V_{DS} = -6V, f = 1MHz$		130		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS} = -6V, f = 1MHz$		85		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		9.9		ns
Rise Time	t_r	See specified Test Circuit.		49		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		109		ns
Fall Time	t_f	See specified Test Circuit.		65		ns
Total Gate Charge	Q_g	$V_{DS} = -6V, V_{GS} = -2.5V, I_D = -3.5A$		6.2		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS} = -6V, V_{GS} = -2.5V, I_D = -3.5A$		1.6		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS} = -6V, V_{GS} = -2.5V, I_D = -3.5A$		1.1		nC
Diode Forward Voltage	V_{SD}	$I_S = -3.5A, V_{GS} = 0V$		-0.83	-1.2	V

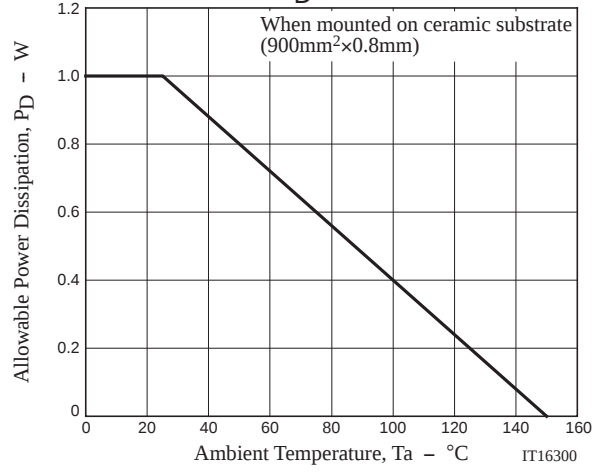
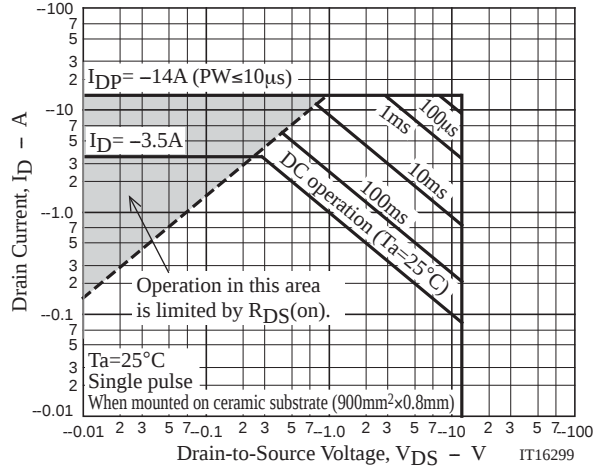
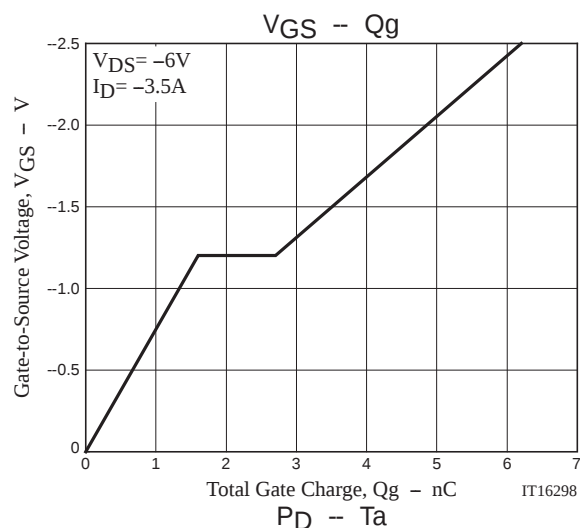
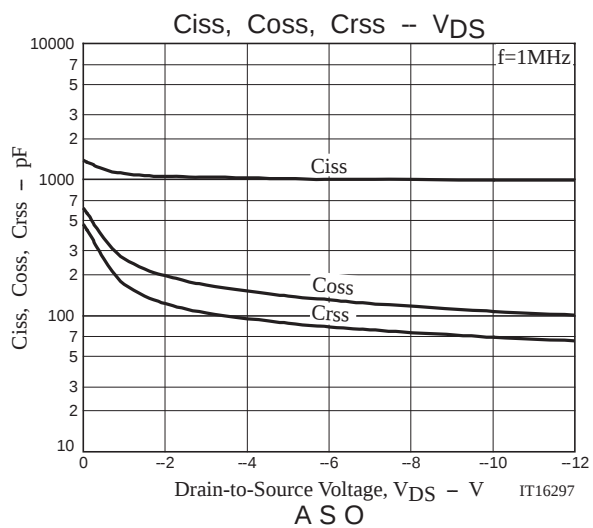
Switching Time Test Circuit



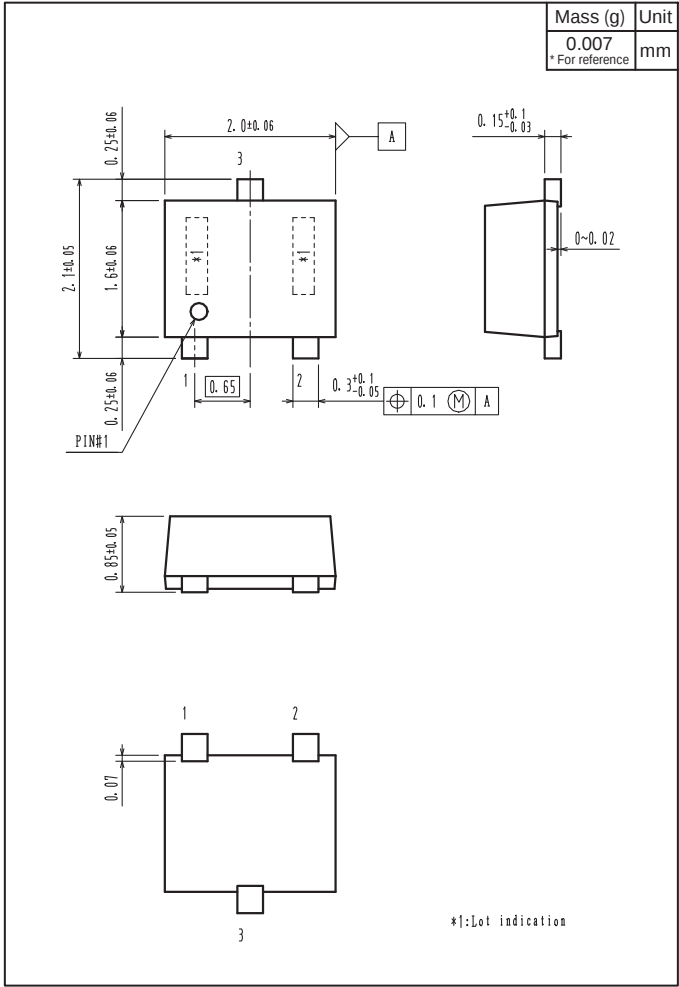
Ordering Information

Device	Package	Shipping	memo
MCH3383-TL-H	MCPH3	3,000pcs./reel	Pb Free and Halogen Free

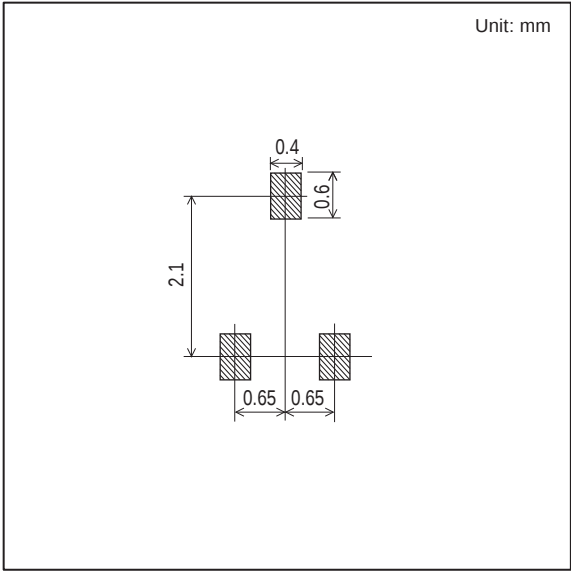




Outline Drawing
MCH3383-TL-H



Land Pattern Example



Unit: mm

Note on usage : Since the MCH3383 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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